AMENDMENTS TO THE CLAIMS

Pursuant to 37 C.F.R. § 1.121 the following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A defect inspection method for detecting surface errors in a three-dimensional shape, comprising:

repetitively scanning a light beam in a linear pattern on a first work;

said first work being a reference work having a desired surface shape;

storing reference images of said linear pattern on said first work, together with related information about positions of said light beam to produce a first matrix value at each position of said light beam;

repetitively scanning said light beam in said linear pattern on a second work;

said second work being an inspected work;

storing inspected images of said linear pattern on said second work, together with related information about positions of said light beam to produce a second matrix value at each position of said light beam;

finding a set of differences between each element of said first matrix and each corresponding element of said second matrix;

defining as defect candidates elements of said set of differences in which said difference exceeds a most frequent difference by a predetermined value; and

determining a presence of defects based on states of said defect candidates.

2. (Original) A defect inspection method according to claim 1 wherein the step of repetitively scanning includes:

rotating a scanning mirror about an axis;

reflecting a light beam from said scanning mirror to illuminate a line on said work; and

moving said work in a direction orthogonal to said line.

3. (Currently Amended) A defect inspection method ~~according to claim 2,~~ for detecting surface errors in a three-dimensional shape, comprising:

repetitively scanning a light beam in a linear pattern on a first work;

said first work being a reference work having a desired surface shape;

storing reference images of said linear pattern on said first work, together with related information about positions of said light beam to produce a first matrix value at each position of said light beam;

repetitively scanning said light beam in said linear pattern on a second work, said second work being an inspected work;

wherein the step of repetitively scanning includes:

rotating a scanning mirror about an axis;

reflecting a light beam from said scanning mirror to illuminate a line on said work; and

moving said work in a direction orthogonal to said line;

storing inspected images of said linear pattern on said second work, together with related information about positions of said light beam to produce a second matrix value at each position of said light beam;

wherein the step ~~of~~ of storing related information about position includes storing instant angles of said scanning mirror;

finding a set of differences between each element of said first matrix and each corresponding element of said second matrix;

defining as defect candidates elements of said set of differences in which said difference exceeds a most frequent difference by a predetermined value; and

determining a presence of defects based on states of said defect candidates.

4. (Original) A surface-defect detection method for a three-dimensional object comprising:

scanning a light beam over a surface of a perfect object;

storing first matrix of reflectances of said light beam from said perfect object;

scanning said light beam over a surface of an inspected object to produce a second matrix;

differencing reflectances of said light beam from said inspected object with corresponding elements in said matrix to form a difference matrix;

adding a most common value in said difference matrix to all elements in said second matrix to produce a corrected matrix;

differencing elements in said corrected matrix with corresponding elements in said first matrix;

defining elements in said corrected matrix which differ from corresponding elements in said first matrix by a predetermined amount as error candidates; and

examining patterns of said error candidates to detect errors in said surface of said inspected object.

5. (Original) A defect inspection method comprising:

finding and storing a first matrix of a projection/recess shape of a perfect work in advance;

finding a second matrix of a projection/recess shape of an inspected work;

finding a difference between a value of said first matrix with a corresponding element of said second matrix, and storing said differences as a difference matrix;

finding a most frequent value in said difference matrix; and

differencing elements in said difference matrix with said most frequent value to produce a candidate matrix; and

identifying elements in said candidate matrix exceeding a predetermined value as defect candidates.

6. (Original) A defect inspection method according to claim 5 further comprising examining a pattern of said defect candidates to identify defects.